PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : C23C 14/06, 14/22 — A1

(11) International Publication Number: WO 00/24947

(43) International Publication Date: 4 May 2000 (04.05.00)

(21) International Application Number: PCT/JP99/05838

(22) International Filing Date: 22 October 1999 (22.10.99)

(30) Priority Data:
10/302259 23 October 1998 (23.10.98) JP
10/302260 23 October 1998 (23.10.98) JP

(71) Applicant (*for all designated States except US*): EBARA CORPORATION [JP/JP]; 11–1, Haneda Asahi–cho, Ohta–ku, Tokyo 144–8510 (JP).

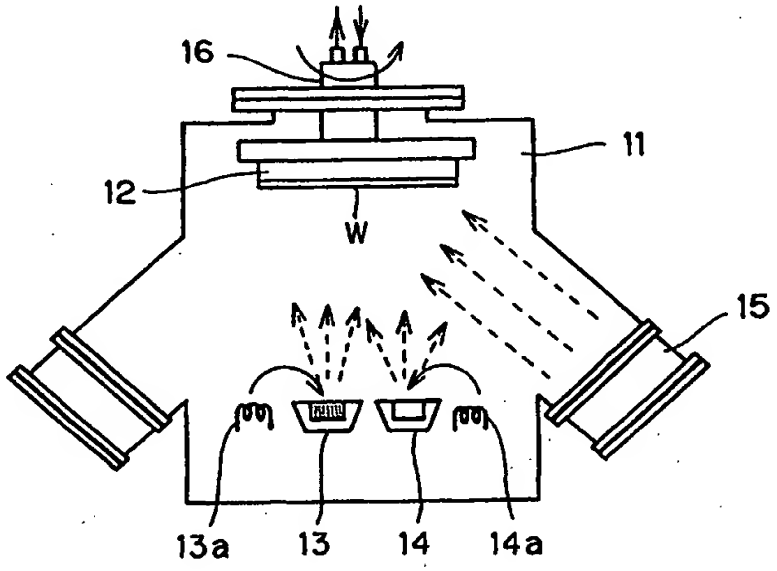
(72) Inventors; and
(75) Inventors/Applicants (*for US only*): NAGASAKA, Hiroshi [JP/JP]; Ebara Research Co., Ltd., 2–1, Honfujisawa 4–chome, Fujisawa–shi, Kanagawa 251–8502 (JP). KAKUTANI, Momoko [JP/JP]; Ebara Research Co., Ltd., 2–1, Honfujisawa 4–chome, Fujisawa–shi, Kanagawa 251–8502 (JP). MIYASAKA, Matsuho [JP/JP]; Ebara Research Co., Ltd., 2–1, Honfujisawa 4–chome, Fujisawa–shi, Kanagawa 251–8502 (JP). KATAOKA, Tadashi [JP/JP]; Ebara Corporation, 11–1, Haneda Asahi–cho, Ohta–ku, Tokyo 144–8510 (JP).

(74) Agents: WATANABE, Isamu et al.; Gowa Nishi–Shinjuku, 4th floor, 5–8, Nishi–Shinjuku 7–chome, Shinjuku–ku, Tokyo 160–0023 (JP).

(81) Designated States: CN, KR, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
With international search report.

(54) Title: SLIDING MEMBER AND MANUFACTURING METHOD THEREFOR



(57) Abstract

This invention relates to a hard coating developed for applications involving high–temperature corrosion by improving the performance of TiN coatings while retaining the superior wear resistance and low friction coefficient of TiN itself. The nitride–based sliding material has a face–centered cubic crystalline structure with lattice constant of between 0.414 and 0.423 nm, and is made of mostly TiN but contains at least one element selected from the group containing Al, Cr, Zr and Hf; or comprises a nitride–based material containing substantially titanium nitride and at least one element selected from a group consisting of B and Si, and having a face–centered cubic crystalline structure comprising crystallites of an average size of not more than 9 nm.